--36. A catalyst carrier comprising a lattice-layer silicate having an aluminium content of less than 0.3% by weight.

37. The catalyst carrier according to Claim 36 wherein the aluminium content is less than 0.03% by weight.

38. The catalyst carrier according to any one of Claims 36 or 37 wherein said lattice layer silicate is a smectite.

39. The catalyst carrier according to any one of Claims 36 or 37 wherein said lattice-layer silicate has a montmorillonite structure.

40. The catalyst carrier according to any one of Claims 36 or 37 wherein the cumulative pore volume is between 0.2 and 0.9 ml/g.

41. The catalyst carrier according to Claim 40 wherein the cumulative pore volume is between 0.6 and 0.7 ml/g.

42. The catalyst carrier according to any one of Claims 36 or 37 in the shape of a spherical body.

43. The catalyst carrier according to Claim 42 wherein said spherical body comprises a ball.

44. The catalyst carrier according to Claim 42 wherein said spherical body has a diameter of between 1 and 10 mm.

45. The catalyst carrier according to Claim 44 wherein said spherical body has a diameter of between 4 and 6 mm.

46. The catalyst carrier according to any one of Claims 36 or 37 wherein the pressure resistance is at least 10 N/mm.

47. The catalyst carrier according to Claim 46 wherein the pressure resistance is at least 20 N/mm.

48. A method of producing a catalyst carrier containing less than 0.3% by weight aluminium comprising impregnating a lattice-layer silicate with an acid, hydrothermally treating the acid-impregnated lattice-layer silicate, and washing the hydrothermally treated, acid-impregnated, lattice-layer silicate with a wash solution selected from the group consisting of acidic solutions, basic solutions, or neutral solutions.

49. The process according to Claim 48 wherein said neutral solution is water.

50. The process according to any one of Claims 48 or 49 wherein said acid comprises a mineral acid.

51. The process according to Claim 50 wherein said mineral acid comprises phosphoric acid.

52. The process according to any one of Claims 48 or 49 wherein said hydrothermal treatment is conducted at a temperature of between 160 and 300°C and a partial water vapor pressure of between 4 and 80 bar_{abs}.

53. The catalyst carrier according to Claim 51 wherein said hydrothermal treatment is conducted at a temperature of between 220 and 260°C and a partial water vapor pressure of between 16 and 25 bar_{abs}.

54. The catalyst carrier of any one of Claims 48 or 49 wherein said hydrothermal treatment is conducted, at least in part, during the use of said catalyst carrier in a hydration reaction.

55. The process according to any one of Claims 48 or 49 wherein said washing takes place at a temperature of between 20 and 100°C.

56. The process according to Claim 55 wherein said washing takes place at a temperature of between 70 and 90°C.

57. The process according to any one of Claims 48 or 49 wherein said washing solution comprises hydrochloric acid.

58. The process according to any one of Claims 48 or 49 wherein the washed, hydrothermally treated, acid-impregnated, lattice-layer silicate is rinsed with water.

59. The process according to any one of Claims 48 or 49 wherein said washing solution comprises water containing up to 30 parts of concentrated hydrochloric acid.

60. The process according to Claim 58 wherein said rinsing is conducted until the rinsing water is neutral.

61. The process according to any one of Claims 48 or 49 wherein said lattice-layer silicate is purified by burning off adhering organic carbon-containing compounds at a temperature of between 300 and 1000°C prior to any of the steps set forth in Claim 48.

62. A catalyst carrier produced by the process according to any one of Claims 48 or 49.

63. A process for hydrating an olefin with water in the presence of at least one catalyst made from the catalyst carrier according to any one of Claims 48 or 49.

64. The process according to Claim 63 wherein said catalyst contains from 5 to 60% by weight of acid and the hydration is carried out in a reactor with an olefin to water molar ratio of from 0.1 to 0.8, at a gas hourly space velocity of 10 to 100 $l_n/min/l_{cat}$ at a temperature of between 160 and 300°C and a pressure of between 20 and 200 bar_{abs}.

65. The process according to any one of Claims 63 or 64 wherein said acid is phosphoric acid.

66. The process according to Claim 65 wherein said phosphoric acid is present in an amount of from 10 to 90% by weight.

67. The process according to Claim 66 wherein said phosphoric acid is present in an amount of from 50 to 60% by weight.

68. The process according to any one of Claims 63 or 64 wherein the hydration reaction is carried out at a temperature of between 220 and 260°C and a pressure of between 60 and 80 bar_{abs}.

69. The process according to any one of Claims 63 or 64 wherein the olefin and said water are present in gaseous form.

70. The process according to any one of Claims 63 or 64 wherein said olefin is a C_2-olefin, a C_3-olefin, or a mixture thereof.

71. The process according to Claim 64 wherein said acid is introduced during the hydration reaction.

72. The process according to Claim 70 wherein said acid comprises phosphoric acid.

73. The process according to Claim 64 wherein acid is continuously injected during the hydration reaction.

74. A catalyst carrier according to any one of Claims 48 or 49 having at least partially a cristobalite-like structure.--

Respectfully submitted,

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